# STRATEGIES FOR DIGITAL LITERACY PROFESSIONAL DEVELOPMENT

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## Chapter 1: Introduction

In modern society, it is easy to see that technology has changed how people live, work, and learn. Technology is constantly improving and creating better user experiences. New revelations are emerging and changing the way people function, including their shopping habits, driving behaviors, reading choices, and learning methods. Online grocery shopping offers convenience and time-savings to consumers (Kurnia, 2013). Amazon can deliver thousands of items within two hours in select cities (Amazon, 2019). Drivers can click on an App on their smartphones, talk to it, and receive step-by-step, spoken directions to destinations. Users can read news stories on mobile devices at any hour, without waiting for the evening television news report or morning newspaper delivery. Chalkboards are being replaced by SMART Boards®, and elementary students are increasingly assigned personal tablets to bring home.

With this increased technology integration and options, people can determine whether and how they want to use it in their daily lives and decision-making processes. Educators may also have the opportunity to choose how to implement technology into their lessons and can enhance those skills with learning opportunities, like professional development. However, some schools lack resources such as technology, administrative support for it, and classroom time to teach it (Ertmer, 2012). In addition, some teachers are uncomfortable with technology (Payton, 2010) and unsure if they could teach it effectively (Prensky, 2008) creating more barriers to teaching with technology. Due to these negative beliefs, some educators could be avoiding the use of technology in their lessons, therefore, eliminating an additional learning method. Additionally, some students may learn better with technology and could be missing important learning opportunities.

Teachers could be uncomfortable with teaching with technology due to their students' technology skills with devices. Before entering school, children often grow up learning how to use technology. However, beyond knowing how to use devices, children also must be able to successfully understand and navigate in those digital environments (Hague & Payton, 2010). Digital literacy, the predominant topic in literacy learning (International Literacy Association, 2018), allows for creative, critical, and safe ways to use technology with information, skills, and understanding (Hague & Payton, 2010). Children may learn digital literacy skills at their schools, however, educators typically have the opportunity to choose how and how much they teach with technology in their classrooms. To enhance their skills in digital literacy and other topics, teachers are required to take professional development classes for continuous learning (Professional Development for Teachers, n.d.). There are many professional development topics options for teachers. However, teachers might not think digital literacy is an important skill since only several states have required digital literacy training based on state legislation (Digital Literacy, 2019).

This study was designed to address several research questions:

RQ 1: First, why do teachers feel uncomfortable teaching with technology and skeptical about it's effectiveness?

RQ 2: What are some strategies to mitigate teachers' discomfort and negative opinions about the efficacy of teaching with technology?

RQ 3: What promotional strategies can be implemented to encourage teachers to enroll in digital literacy professional development to change their beliefs?

To address these research questions, this thesis engaged a mixed-methods approach that included an online survey, individual interviews, and small group activities. This approach was used to

gather input from a diverse group of educators and more complete data regarding different topics relating to digital literacy. The study engaged 40 participants who were elementary (K-5) teachers and in Delaware County, Indiana. The study explores educators' beliefs about using technology in their classrooms, digital literacy knowledge, and suggestions for effective promotional tactics for professional development workshops. Research included an online survey focused on digital literacy and professional development, individual interviews about technology and professional development, and small-group activities including professional development strategies for promotion.

The first research question addressed teachers personal barriers of uncomfortable and skeptical about the effectiveness of technology use. Research shows that technology-taught lessons can helps increase students' achievements, alter their behaviors, and influence their future successes (Project RED: Revolutionizing Education, 2010). Additionally, students grow up in a technology-filled world and many will need to know how to successfully use and navigate technology in their future careers. However, if teachers are uncomfortable and feel that it is ineffective, they may not choose to teach with technology leaving students without the possible additional achievements and advancements. The reasons why some teachers are adverse to technology use could help professional development programs develop better class structures and topics to teach within the classes. For instance, if educators feel that software is not adaptable to different student levels, deeming technology ineffective, the program facilitators could teach them what software is adaptable and how to use it. If educators feel uncomfortable due to their students being more knowledgeable about technology, the class could contain additional digital literacy skills beyond functionality, and how to incorporate them into lessons.

The second research question was developed to find strategies to mitigate teachers' discomfort and negative opinions about the efficacy of teaching with technology. Not only do digital literacy professional development programs facilitators need to fully understand the reasons for discomfort and negative efficacy opinions, they need to be able to use strategies to try and alter educator's beliefs within classes. Educators may not be able to clearly see the positive attributes of technology if they have deep negative beliefs and have never been educated them. Learning about the positive reasons for technology use could give educators the opportunity to change their beliefs based on their new findings. Additionally, school administration who include plans for technology and digital literacy in their school system could use the strategies to encourage teachers to use them in their classes effectively.

The third research question addressed promotional strategies that can be implemented to encourage teachers to enroll in digital literacy professional development to change their beliefs. It is important to send the right message to the right audience for better engagement and interest. Digital literacy professional development program facilitators can use the promotional strategies to encourage educators to enroll in classes. Without a strategy, the promotions may not include the important information that educators need to understand about the class and it may decrease the number of enrollments in the class. On the contrary, inaccurate information may lead educators to sign up for classes and be upset if the promotions did not match what the class offered to them.

Educators must remain up to date on 21st century skills, emerging technologies, and digital literacy in order to help their students be successful in school and in their future careers. To contribute to this goal, this study will provide strategies to overcome teachers' barriers to teaching with technology. It will also reveal strategies on how to promote digital literacy

professional development to teachers in ways they will find motivating and appealing. This study also provides guidance for Professor Garfield's 21st Century Literacy Project grounded in an online digital literacy curriculum developed in conjunction with a team of faculty and students from Ball State University's (BSU) Center for Emerging Media Design & Development (EMDD). The website professor.garfield.com provides support materials and exercises to K-5 teachers to support their Digital Literacy teaching efforts (Professor Garfield, n.d.). The future of this project includes in-person Professor Garfield professional development workshops to train educators about digital literacy and how to use the website and it's resources in their classrooms. Thus, the findings from this study will help the Professor Garfield team understand how to market the program to educators.

Furthermore, professional development marketers and program developers of digital literacy content can use the information in this thesis to better understand teachers' beliefs and reach them with the best promotions. They can use the strategies within their class structure and course content. There are and will be many other new educational topics that create skepticism and uncomfortable feelings from teachers. This thesis will help program developers and marketers better inform educators about the new topics of their programs and help to market and promote them successfully.

The following literature review first examines professional development including it's requirements, teachers' learning processes, topics, and views of the digital literacy topic. Next, it shares key barriers for educators when teaching with technology that include personal beliefs and uncontrollable reasons. It follows with strategies for overcoming those barriers including current digital literacy professional development opportunities available for teachers. The methodology chapter chronicles the mixed-methods research protocol developed for this study, including an

online survey, in-person interviews, and small-group activities with K-5 teachers in Delaware County, Indiana. The data includes educators' beliefs about using technology in their classrooms, digital literacy knowledge, and suggestions for effective promotion of professional development sessions related to digital literacy. The results are summarized into several key categories: technology and digital literacy resources, use, beliefs, and strategies. Finally, the discussion defines and presents six keys themes that emerged from this study: 1) a technology plan to avoid overuse, underuse, and misuse of digital tools, 2) time for learning and collaboration with teachers, 3) required professional development, 4) accurate promotions for professional development, 5) timing of professional development, and 6) professional development communication methods. Additionally, this thesis includes strategies that will specifically benefit digital literacy professional development programs: how to balance of technology use and mitigating chaos when using devices.

# Chapter 2: Literature Review

This literature review draws from research in the following areas

- professional development;
- teachers' learning processes;
- technology integration;
- digital literacy in education;
- barriers to teaching digital literacy;
- digital literacy teaching strategies;
- digital literacy professional development options.

To learn new skills, educators attend professional development classes throughout the year (Professional Development for Teachers, n.d.). Within those classes, research has shown that teachers need professional development that offers active learning and collaborative environments (Badri, 2016). One of the professional development topics is digital literacy, and when successfully integrating technology into classrooms, studies have shown higher rates of student achievement (Project RED: Revolutionizing Education, 2010). Digital literacy gives students the tools to understand and navigate in digital environments (Hague & Payton, 2010). However, some teachers' hold personal beliefs, including being uncomfortable with technology (Payton, 2010) and skeptical about its effectiveness in their classrooms (Prensky, 2008). These barriers could be broken down by increasing technology knowledge and skills (Ertmer, 2007) through professional development strategies and classes.

## Professional Development

The field of education is constantly evolving, and to stay up to date with 21st century skills, teachers must continuously learn new instructional techniques and educational topics

(Professional Development for Teachers, n.d.). Professional development is a form of education that gives teachers opportunities to enhance their skills and classrooms through classes or workshops, either in person or online. All public school teachers are required to complete a number of professional development hours within a specified timeframe, with the hours varying based on schools and districts policies. The structure of a workshop or class and its content are important factors when teachers consider their professional development options (5 Things Teachers Want in Professional Development, n.d.). Teachers find that a social environment that includes other teachers from different backgrounds and locations creates a better learning environment. Teachers also have reported that they trust other teachers and prefer their professional development to be facilitated by those who know the content and have prior experience teaching the material to students. Teachers face unique challenges in their classrooms and need content to be flexible so they can easily apply and modify it to fit their needs. Online options provide teachers flexibility, which is valuable during the school year. Finally, lessons from professional development are most successful when teachers can immediately implement what they learned into their classroom.

If teachers gain more technology knowledge and skills, studies show that teachers' personal beliefs toward technology can change (Ertmer, 2007). Professional development classes give teachers a way to overcome their personal barriers (Ertmer, 2012). However, there is more necessary than just attending classes. To be successful, it is important that professional development classes are structured to include a collaborative environment (Badri, 2016), focused content, a connection with their school's curriculum, and coaching while educators' practice teaching the new skills (Bush, 1984). Teachers are more likely to integrate technology into their classrooms if they see evidence of improved performance on state assessments (Ertmer &

Ottenbreit-Leftwich, 2010) and if students are more engaged (Marsh, 2017). Digital literacy professional development is offered in many ways including week-long conferences (Summer Institute in Digital Literacy, n.d.), online classes (Digital Citizenship Curriculum Tutorial, 2016), online webinars (Practical Online Teacher Training, n.d.), and step-by-step resource documents (Payton & Hague, 2010).

Research has also shown that teachers' learning processes are more complex, requiring that professional development leaders do more than simply present them with information and strategies for teaching (Teaching the Teachers: Effective professional development, n.d.). Furthermore, research has shown that teachers are better able to master new skills if they have 50 to 80 hours of training, practice, and coaching (Banilower, 2002). Only 10 percent of teachers are able to successfully implement what they learned into their classroom after a skill is described from a professional development class; however, if they're coached while trying to teach it, 95 percent can apply it successfully (Bush, 1984). To maximize teachers' ability to effectively learn and implement new strategies in their classrooms, the following program elements have proved to be necessary: 1) robust and focused content, 2) active learning methods, 3) a collaborative environment, and 4) a connection with their school's curriculum (Badri, 2016). Active learning methods can include live modeling, role playing, readings, and teaching observations and discussions (Teaching the Teachers: Effective professional development, n.d.). In order for teachers to adopt new methods, it's also important that they are coached through them (Showers, 1984). For example, an evaluation of Georgia's InTech program, developed to merge technology into the curriculum, found that teachers with access to a technology integration specialist felt more confident to experiment with technology in their classrooms (Zhao, n.d.).

Some common professional development topics include adolescent literacy, assessment and evaluation, closing the achievement gap, Common Core standards, content area reading, differentiated instruction, early childhood and family engagement, guided reading, independent reading practices, and literacy retreat (Professional Development for Teachers, n.d.). Literacy – one of the common topics – is traditionally defined as the ability to read and write (Merriam-Webster, n.d.). However, with the advent of the Internet, literacy has evolved into digital spaces for children such as, playing video games and interacting on social media (Davies et al, 2009). They don't just need to know how to use technology devices, but they must also be able to successfully understand and navigate in those digital environments (Hague & Payton, 2010). Hague and Payton, of Britain's Futurelab organization, assert that digital literacy "furnishes children and young people with the skills, knowledge, and understanding that will help them to take a full and active part in social, cultural, economic, civic and intellectual life now and in the future" (Hague & Payton, 2010, p 4). They developed eight themes of digital literacy: collaboration, creativity, critical thinking and evaluation, cultural and social understanding, effective communication, e-safety, functional skills, and the ability to find and select information. The themes overlap and allow students to create and share meaning (Hague & Payton, 2010). Learning digital literacy begins with students knowing cultural and social issues, being able to critically think, and being creative. Then, students use digital tools and technology to learn more, enhance learnings, and provide support.

Literacy leaders view digital literacy as the predominant topic in literacy learning (International Literacy Association, 2018). In 2018, the International Literacy Association (ILA) conducted a survey to understand the current literacy conversations and trends. In this survey, the topic of digital literacy was ranked first in the *Hot Topics category* and 13th in the *Importance*

*Category*, out of 17 topics. This large gap between the rankings of those categories may be attributed to the preferred age level in developing digital literacy skills. Some respondents commented that teaching digital literacy at a young age was hurting foundational literacy skills. However, others felt it was essential for future success. Subsequently, Disciplinary Literacy and Critical Literacy were both ranked higher than digital literacy in the *Importance Category*. The gap could also be attributed to the lack of understanding of digital literacy and how it is applied to the classroom. A few states have modified their requirements for teaching training to include aspects of digital literacy based on state legislation (Digital Literacy, 2019). Washington schools ensure safe technology practices, media literacy, and Internet use are discussed. They also added duties to library and technology teachers to help integrate technology into the curriculum. Utah schools require teaching safe technology use. Maine schools requires programs for professional development and training for teachers to encourage digital learning in their classrooms and how to use online learning resources.

**Technology Integration**

When technology is successfully implemented in schools, student achievement and return on investment may improve, according to a study by Project RED with 997 participating schools (Project RED: Revolutionizing Education, 2010). The study included a survey with 22 independent variables and 11 education success measures, many of which were found in the research literature. The findings from the study resulted in the identification of seven key factors for achieving technology implementation success. First, technology implementation should include: 1) integration in all classes, 2) monthly time for professional learning and collaboration for teachers, 3) daily online student collaboration, 4) weekly integration in core curriculum, 5) weekly online assessments, 6) low student-to-computer ratios, 7) monthly virtual field trips, 8)

daily search engine use by students, and 9) principals trained in teacher buy-in and technology best practices. Second, properly implemented technology led to reduced costs and improved productivity. Third, a one-on-one student-to-computer ratio proved more successful than other ratios. Fourth, successful school principals were able to model and lead technology integration changes. Fifth, classes in which technology is the key learning component and those in which students work at their own pace, were valuable factors. Sixth, online collaboration improved student achievements and graduation rates. Finally, daily technology use showed better attendance, positive behaviors, and increased college attendance. This study highlights how technology integrated into classrooms can improve students' future successes.

Research has also yielded mixed results for technology use in classrooms (Underwood, 2009). Technology has benefited students by fostering increased performance, efficiencies, engagement, satisfaction, and positive attitudes. In one study, low-achieving students who typically displayed disruptive behaviors were placed in a 10-week computer-delivered intervention, resulting in better listening and attention skills (Davidson et al., 2006). Another study showed that dyslexic children who used text-to-speech and voice recognition software showed increased academic performances (Underwood et al., 2009). An interactive, non-violent driving game developed by NADA and SmartBrain Technologies was tested on boys aged 9 to 11 diagnosed with ADHD, and the experimental group had a 39% lower clinical support drop-out rate and positive behavior changes (Orlandi and Greco, 2004). These studies show ways technology can be successfully developed for specific groups of school children. On the contrary to these positive outcomes, some argue that non-technology lessons that are well managed could have had the same results (Baker et al., 1997). It can also be difficult to measure results from

technology use since there are many variables and school environments are a unique place for testing (Herman, 1994).

**Barriers to Digital Literacy Teaching**

Educators at schools with little access to technology had a hard time changing their personal views of technology in their classroom (Ertmer, 2012). Schools that lack administrative support for technology-based plans and technical support for issues keep teachers from integrating technology into their classrooms. Teachers also have limited time available to attend training and integrate the leanings into their classrooms. Problems with technology and the network can also create a barrier. A strong focus on state assessments and standardized tests can reduce the focus on technology. Beyond resources, personnel views, and time barriers, are teachers' personal beliefs, including being uncomfortable with technology (Payton, 2010) and skeptical about its effectiveness in their classrooms (Prensky, 2008).

In fact, although it's extremely common to see technology devices in children's hands, teachers are often much less comfortable with technology. A 2017 study found that children, aged eight and under, on average, spent two hours and 19 minutes per day with screen media (The Common Sense Census: Media Use by Kids Age Zero to Eight, 2017). The same study has shown that screen time on a mobile device for this age group is increasing. In 2011, the same study found that this age group only with screen time tripling to 15 minutes, and in the 2017 study, it tripled again to 48 minutes. Technology is becoming easier to navigate and more visually appealing with easier-to-use interfaces. With this advancement, parents can give mobile devices to children with little to no instruction on how to use it and it's intuitive for children to learn. As a result, some teachers have reported that they feel their students' functional technology skills are more developed that their own skills (Payton & Hague, 2010). This barrier

may cause educators to be resistant to integrate technology into their classrooms. However, students may be missing out on opportunities because technologies allow them to learn beyond their textbooks. Using technology is one part of the process. Being able to understand, find meaning, and engage within the technologies is a more important component of the process. Digital literacy gives students digital tools and knowledge to empower them with critical, creative, discerning, and safe methods to learn.

Teachers also have different opinions about and experience with technology use in their classrooms (Prensky, 2008). Some teachers resist learning how to use technology. Others feel that students could misuse the technology. If schools adopt technology into their classrooms without a clear plan that decision could have negative results as found in a New York district (Hu, 2007). The Liverpool Central School District issued laptops to students, but after seeing no effect on students' performances and abuse of the technology during a seven-year period, the district removed the laptops. Moreover, the technology was not built into the curriculum. In addition, the district experienced high maintenance costs and teacher resistance, both contributed to the negative effects. Mark Warschauer, author of "Laptops and Literacy: Learning in the Wireless Classroom," suggested that teachers needed time to be trained on the technology and how to effectively incorporate it into their classrooms before abandoning the educational tool.

Confidence in teaching technology skills and the act of teaching those skills in a classroom does not have a positive correlation (Russell, 2003). A prior study demonstrated teachers with five or fewer years of teaching experience were significantly more confident using technology than teachers with six or more years teaching. However, the same set of teachers with five or fewer years of teaching experience felt that technology in their classrooms would have negative effects. The study showed that teachers' attitudes and beliefs are reflected in their

decision to use technology in their classrooms. In addition, teachers may not have grown up with exposure to technology as a child and this is directly influencing their skepticism about technology in their classrooms (Marsh, 2017). Professional development focused on technology could help change teachers' thinking if it's able to change their perspectives.

**Digital Literacy Teaching Strategies**

Breaking down technology barriers, such as personal beliefs and drive, could be achieved by increasing technology knowledge and skills (Ertmer, 2007). This can be accomplished during technology professional development sessions by focusing on changing teachers' beliefs (Ertmer, 2012). Another study suggested that changing beliefs can take years to fully accomplish with the first year being deeper learning (Bebell, 2010). Student-centered approaches have helped teachers overcome their fears with technology (Ertmer, 2012). Students who helped teachers troubleshoot technology and taught them new ways to use it reduced their teachers' fears. Another study showed that teachers were less fearful using technology after their students helped them build the technology lessons (Harper, 2008).

A report from the National Staff Development Council suggests that professional development include more continuous and collaborative methods that would solve similar problems and important challenges (Darling-Hammond, et al., 2009). For instance, educators interact and learn from online networks like blogs and wikis. Other studies show that educators interact and share new learnings on social media (Luehmann & Tinelli, 2008). Professional Learning Networks (PLN) provide teachers with access to multiple digital sources so they can follow their preferred institutions or teachers (Perkins, 2010). Perkins states that professional development through networks provides "individualized focus, context-based learning, and empowerment of teachers" (p. 15).

If teachers see benefits for their students, then they are more likely to incorporate technology into their classrooms (Ertmer, 2012). Teachers who see evidence that technology is helping students improve performance on state assessments will be more convinced that technology helps their students (Ertmer & Ottenbreit-Leftwich, 2010). Some teachers reported that students are more engaged and motivated when technology is used, giving them a reason to include it in their classrooms (Ertmer, 2012).

**Digital Literacy Professional Development.**

Educators can choose from a variety of ways to learn about digital literacy including online training with a cross-curricular approach (Digital Citizenship Curriculum Tutorial, 2016), a 30-hour online training course (Digital Learning for the K-8 Classroom, 2018), a 68-page training guide (Payton & Hague, 2010) and online cross-curricular lessons for students with teacher resources (2016 & Professor Garfield, n.d.). There are short training options from PBS TeacherLine, a one-and-a-half-hour long online class that includes the foundation of digital literacy, Internet safety, critical assumption, online responsibility, and case studies (PBS TeacherLine, n.d.). The $49 class offers course content, videos, and self-assessments. SimpleK12 offers 40 online webinars in digital citizenship and gives participants collaboration functionality (Practical Online Teacher Training, n.d.). Teachers can earn up to 26 credit hours and the program charges $397 a year for unlimited webinars. A 42-hour, six-day summer institute is offered at the University of Rhode Island, (Summer Institute in Digital Literacy, n.d.). Participants can choose from a variety of workshops and learn in a hands-on and collaborative environment.

Segmented by grades K-2, 3-5, 6-8, and 9-12, Common Sense Education offers free award-winning online digital citizenship training (Digital Citizenship Curriculum Tutorial,

2016). Partnering with the Harvard Graduate School of Education, the K-12 curriculum offers 80 lessons including handouts and assessments for students, videos, tip sheets for families, and resources for professional development. The cross-curricular topics include security and privacy, reputation and digital footwork, self-image and identity, credit and copyright, communication and relationship, information literacy, cyberbullying, and safety. Each grade segment contains 15-20 lessons. For K-2, lessons include navigating the internet, how to connect to others through email, and what keywords give you the best search results. Lessons for grades 9-12 include how posting information can affect future opportunities, why websites can encourage online communities, and how digital media fits into lifestyles. The lessons meet Common Core, American Association of School Librarians, and International Society for Technology in Education's National Education Technology Standards.

The Teachers College at Columbia University, along with an award-winning educator, Dr. Detra Price-Dennis, developed the course content for an online, 30-hour professional development course for K-8 teachers (Digital Learning for the K-8 Classroom, 2018). Educators receive three continuing education credits in the self-paced course and there are four modules in the course curriculum. The first module focuses on why digital literacy matters including how innovative technology is changing the act of learning. The second module examines how digital tools are integrated into the classroom like comparing tools and how they encourage collaboration and inquiry from students. The third module shares how to incorporate digital tools into curriculum including lessons plans that give students the ability to develop digital content. Finally, module four, teaches how to access the students' learnings including how to design a plan. Participants receive lessons and worksheets to use in their classrooms. During the course,

they can post ideas and collaborate with other participants in an online teacher community setting.

Payton and Hague developed a 68-page professional development resource (Payton & Hague, 2010) for primary and secondary teachers to incorporate digital literacy into their curriculum. In the resource, they first introduce digital literacy, share why it's important in schools, and how to use the professional development materials. Most of the materials can be used by an individual teacher or with a group of teachers, and some of the materials should be taught within a class of students. The resource is then separated into four sections. Section one contains six exercises designed to show teachers how digital literacy relates to their profession. The exercises contain the purpose, materials needed, activities and time lengths, takeaways, and downloadable resource sheets to fill out. Section two includes five exercises to explore digital tools and how they can be used including how to create a short film, animation, podcast, wiki, and website. It also includes a list of free online resources for teachers and students. Section three includes three exercises to help teachers create activities to include digital literacy in their curriculum. The exercises include 30 minutes of quick planning, two hours to create and walk through a digital literacy activity, and 30 minutes to design a planning guide. Section four contains five exercises that teachers can use in their classrooms. Each exercise states how the digital literacy helps the students and is adaptable for the teacher's needs. They include interpreting a tagline and using a tool to communicate it, collaging a word with images, animating a story, using computer games in the classroom, and using digital photos and understanding how meaning is made with them. Finally, section five, includes ideas of how to use the learned knowledge. They suggest educators can create their vision of digital literacy and how to make it a reality, teach a professional development class for colleagues, and conduct a

research study about an aspect of digital literacy.

## Chapter 3: Methodology

The study explores educators' beliefs about using technology in their classrooms, digital literacy knowledge, and suggestions for effective promotion tactics for professional development workshops. Research included an online survey focused on digital literacy and professional development, individual interviews about technology and professional development, and small-group activities including professional development strategies for promotion. This mixed-methods approach was used to gather input from a diverse group of educators and more complete data regarding different topics relating to digital literacy. The study engaged 40 participants who were elementary (K-5) teachers and in Delaware County, Indiana.

### Survey

Seventeen educators from Muncie Community Schools (MCS) participated in a 43-question online survey (see Appendix A). This survey was designed to elicit feedback about their knowledge and use of digital literacy and technology and how they learn about digital literacy and technology professional development and apply it to their teachings. The survey was created in Monkey Survey, an online survey tool, and a link to the survey was sent to MCS educators through emails. Participants were considered thought leaders at MCS, volunteered at a fall 2018 MCS focus group to be contacted for future digital literacy studies, or attended a spring 2019 MCS focus group. This instrument provided a broad sample of MCS educators. Additionally due to the anonymity, the survey instrument provided more honest data and candid responses. The survey asked participants

- about their teaching roles;
- how they use technology in classrooms;
- types of technology used in classrooms;

- their participation rates in technology and digital literacy professional development both inside and outside their schools;
- how they seek digital literacy professional development opportunities;
- how they are informed about digital literacy professional development opportunities;
- whether and how they have applied their learnings from digital literacy professional development in their classrooms;
- the length of weekly hours dedicated to teaching how to use digital tools;
- specific uses of digital literacy teaching and examples of each use;
- ways they learn about teaching and using technology;
- about homework assignments with technology tools;
- and their confidence, effectiveness, and importance beliefs about digital literacy.

The questions were multiple choice and open ended to gather more responses. To find significance in the data, the multiple choice answers were tallied and open ended answers were categorized to find key themes.

**Interviews**

Ten educators from Delaware County, Indiana schools participated in the 14-question interview (see Appendix B) to explore what technology they use in their classrooms and why, their perceptions about teaching with technology, reasons why they choose and do not choose professional development classes, and whether and why they would choose to participate in a digital literacy professional development class. Interviews were chosen to gather more detailed data about their beliefs. Additionally, the participants would be more focused on their responses due to a face-to-face interviews. Participants were interviewed individually and in person, mostly

after school in their classrooms. Participants were current educators employed at elementary schools. Participants were asked whether they use technology in their classrooms, reasons why or why not, and reasons why they do and do not choose professional development classes. They were also asked to rate their comfort levels and perceptions of personal effectiveness of teaching with technology and whether they would choose a digital literacy professional development class. Many of the questions were open ended to gather more detailed responses. To understand significant data, some questions were on a Likert scale. The open ended responses were categorized by similar themes and the Likert scale were tallied to find significant data.

**Activities**

Thirteen educators from Muncie elementary schools participated in two- to three-person group activities designed to understand what information is most important for effectively promoting digital literacy professional development classes and how they felt those classes should be promoted to other teachers. Participants were asked to imagine that they were teaching a digital literacy professional development workshop to other teachers in their schools and design a bulletin board inviting them to attend. A small group allowed participants to collaborate and gather more responses. Additionally, it provided increased engagement within the activity since they were able to work together to find better answers.

They were given the following items: 1) a blank piece of letter-size paper to create their bulletin board, 2) a sheet containing optional words to use on the bulletin board design (see Appendix C), and 3) supplies including markers, scissors, and glue sticks. The sheet containing optional words to use on the bulletin board design were taken from research findings in this study. The purpose of the words was to understand if teachers thought they were valuable and used them in their bulletin designs. After the participants designed the bulletin board (see

Appendix D), they were asked to imagine that they were going to teach their class to educators outside of their school system and think of their bulletin board as an advertisement. They were asked to complete a one-page sheet that included ways to advertise their professional development workshop: 1) emails, 2) online, 3) direct mail, 4) print publications, 5) social media, and 6) other ways (see Appendix E). The sheet also included details about each of those advertising methods. The final sheets were three-question surveys that validated each participants use of technology in their classroom, and their comfort level and effectiveness of teaching with technology (see Appendix F). To find the significant data, the responses were categorized by similar themes and tallied.

# Chapter 4: Results

The purpose of this qualitative study was to uncover strategies for digital literacy professional development by understanding educators' use, knowledge, beliefs, and preferences related to the topics of technology and digital literacy. The study also examined promotion ideas and communication methods for professional development opportunities. Forty educators participated in an online survey, individual interviews, and small-group activities. The participants were from Delaware County, Indiana schools. The results included technology and digital literacy resources, use, beliefs, and strategies.

## Survey Results

The online survey instrument revealed educator's knowledge and use of digital literacy and technology and how they learn about digital literacy and technology professional development and apply it to their teachings. Almost 70 percent of teachers said their schools provided them the flexibility and resources to teach about digital literacy in their classrooms (Figure 1). When looking at technology and digital literacy professional development classes attended in the last year, slightly more than half of the teachers have not attended any classes (Figure 2). Broken down, about two-thirds of teachers did not attend a technology professional development class, and about one quarter of teachers did not attend a digital literacy class. Nearly half of the participants who attended professional development in the last year chose digital literacy and it was held at their schools. Furthermore, slightly more teachers who have attended technology professional development went to sessions outside their schools vs. inside.

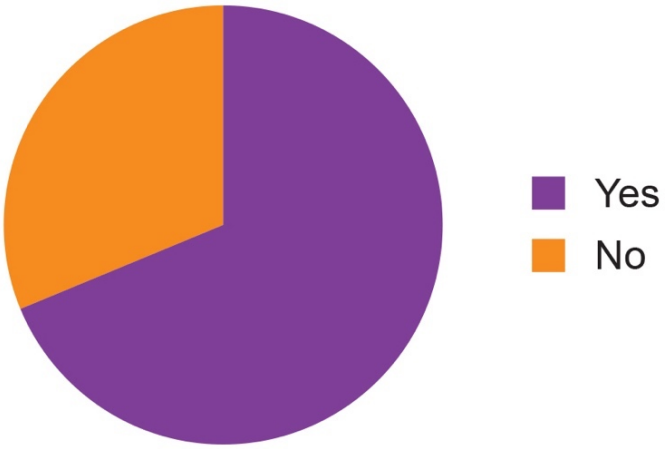


*Figure 1.* Teacher perceptions about whether schools offer flexibility and resources to teach digital literacy

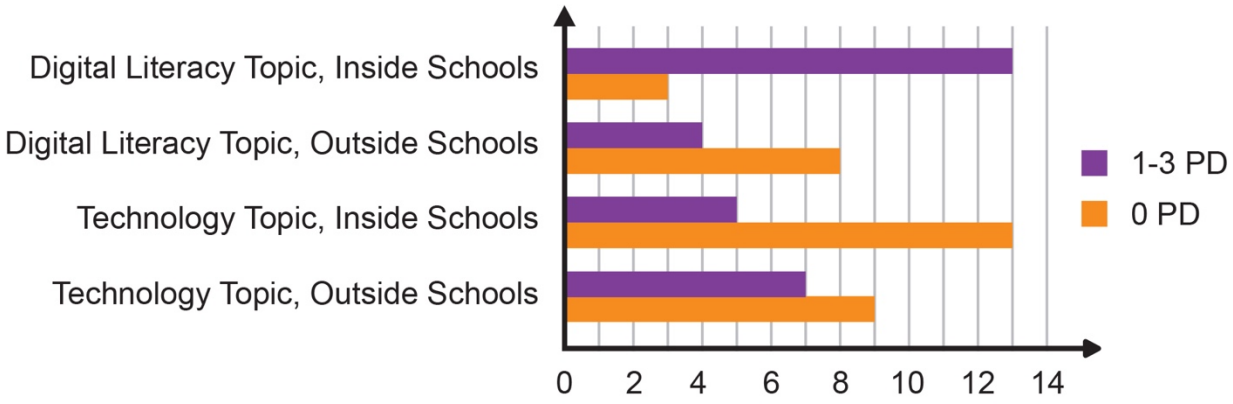


*Figure 2.* Number of teachers who attended professional development (PD) in the last year

The survey instrument also examined how many weekly hours educators dedicated to teaching students how to use digital tools and what key skills were taught. Two-thirds of teachers dedicated less than one hour a week to teaching students how to effectively use digital tools, followed by one to two hours and two to five hours (Figure 3). Additionally, among the eight digital literacy skills outlined by Hague and Payton (Hague & Payton, 2010), e-safety, functional skills, and finding and selecting information clearly receive more attention than the other five, with a dramatic drop in instruction after effective communication (Figure 4). It's important to

note that the least-taught skill as reported by teachers was how to collaborate effectively in digital environments. Additionally, some participants stated that their devices were outdated, not uniform, and needed Apps that were educational-appropriate. Another participant felt that they don't have time to teach digital literacy unless they build it into what they already teach. One other participant stated that a technology teacher and training was necessary for them to increase their digital literacy teaching.

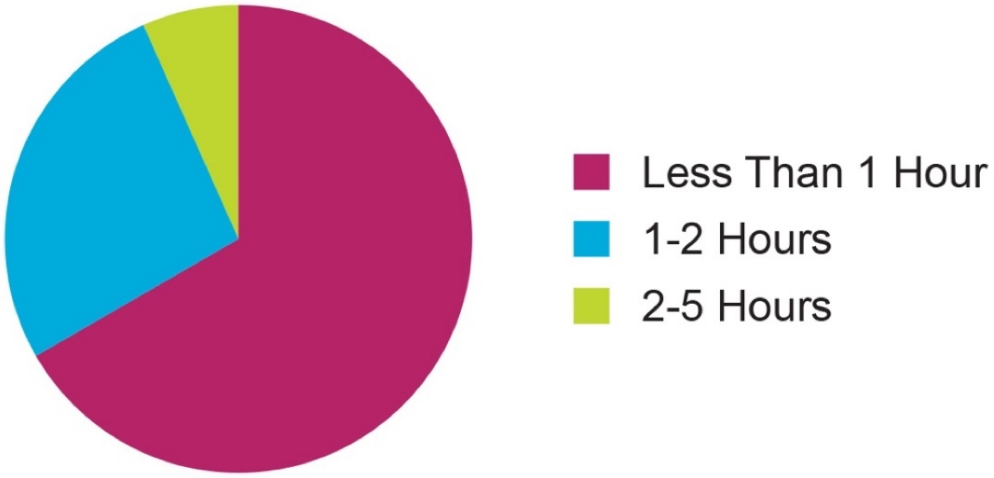


*Figure 3.* Hours a week dedicated to teaching how to use digital tools

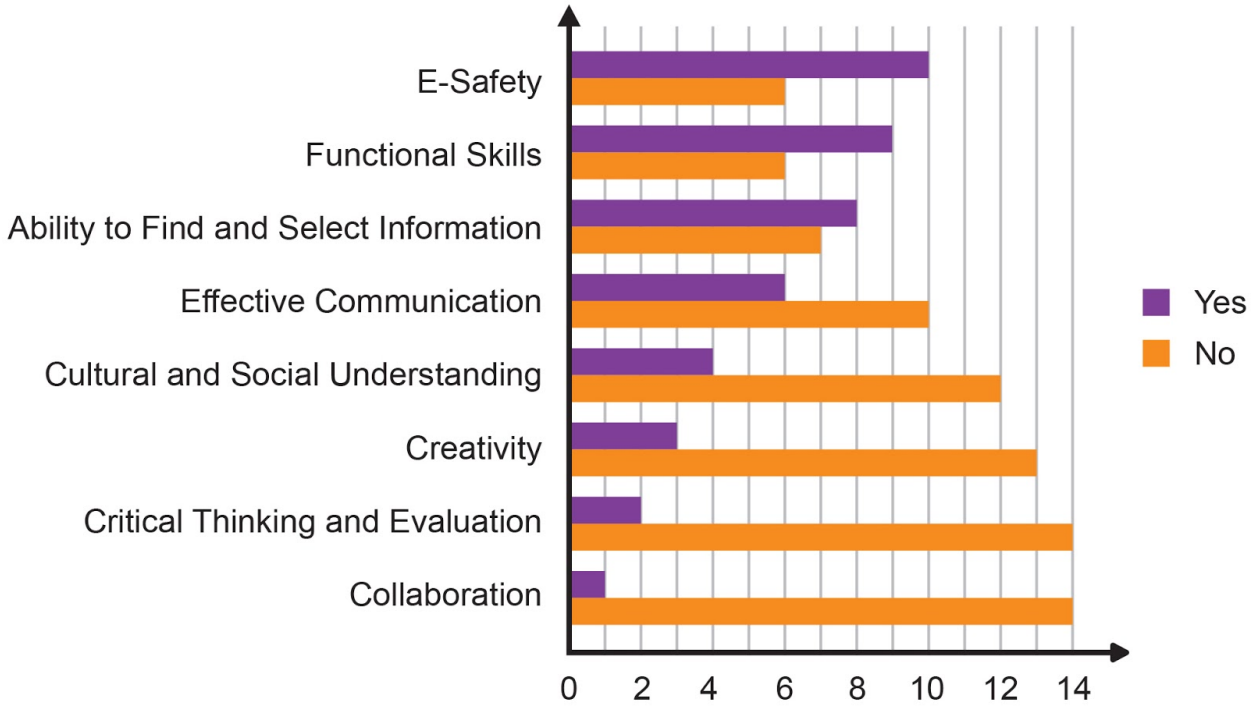


*Figure 4.* Number of teachers who have taught key digital literacy skills

*Notes.* The questions asked for the key digital literacy skills are found in Appendix G.

**Interview Results**

The interview instrument revealed what technology teachers use in their classrooms and why, their perceptions about teaching with technology, reasons why they choose and do not choose professional development classes, and whether and why they would choose to participate in a digital literacy professional development class. The significant reasons teachers reported for feeling comfortable teaching with technology was their established technology skills and the skills they learned through professional development (Figure 5). By far, their top reason for feeling uncomfortable was that they struggle to keep up to date with technology. Teacher access to devices also increased their levels of comfort. Usage was the most important factor for teachers when choosing the level of effectiveness. Furthermore, the balance of use was the top reason for why teachers felt teaching with technology was effective and being overused was the

top reason for feeling that it was ineffective. Many educators stated that physical books were still an important part of learning, and that sometimes, technology is not the right method of learning for particular types of lessons. Educators also reported that engaging content and diverse materials contributed to effective use, while technology that was unadaptable to different skills levels made them feel that technology was ineffective. One teacher asserted that lower social skills and speech delays have recently become more common when some students enter the school system and that this could be attributed to not using technology effectively at a young age.

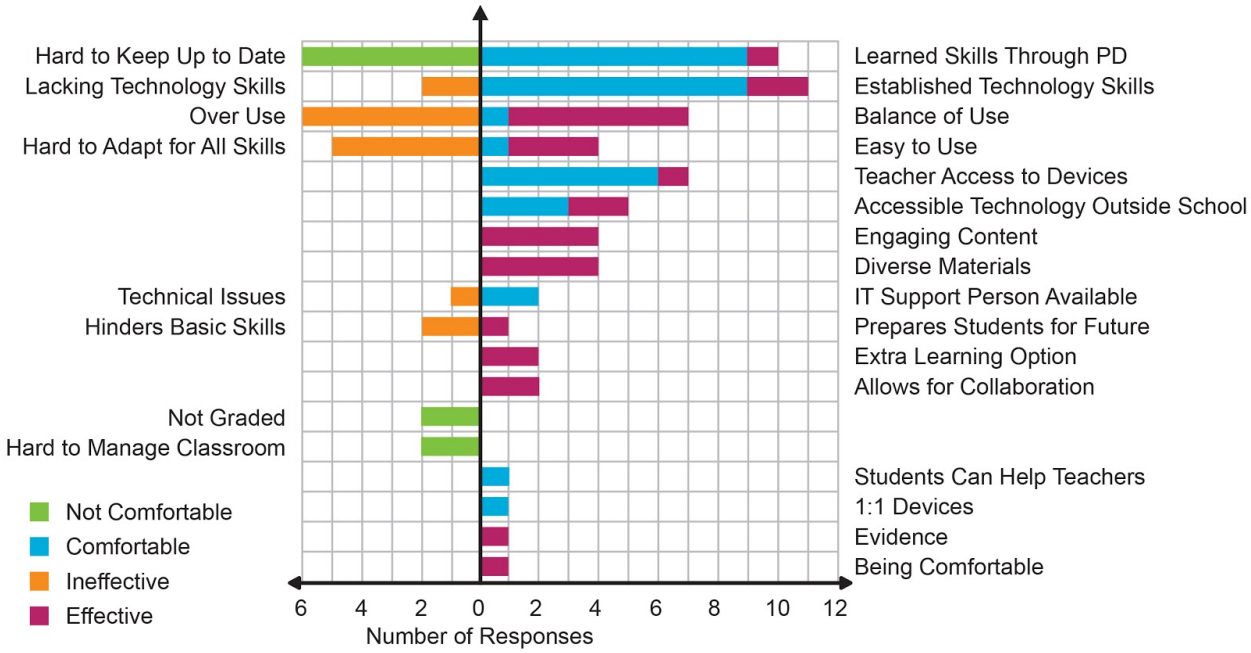


*Figure 5.* Reasons why teachers hold beliefs about teaching with technology

Additionally, results from interviews revealed why they do and do not choose to attend professional development and whether educators would attend digital literacy professional development. By far, teachers choose professional development based on their students' needs. However, the factors of class content and topics, time and dates of the class, and their knowledge of the topics determined whether they attended or not (Figure 6). The majority, 60 percent of the

teachers, reported they would attend or definitely attend a digital literacy professional development opportunity, while 30 percent stated neither yes or no to attending, and 10 percent said they would not attend (Figure 7). Furthermore, results from the survey and interview instruments revealed the most common technology used. The overwhelming top technology used in classrooms being software, followed by Chromebooks, iPads, and SMART Boards® (Figure 8).

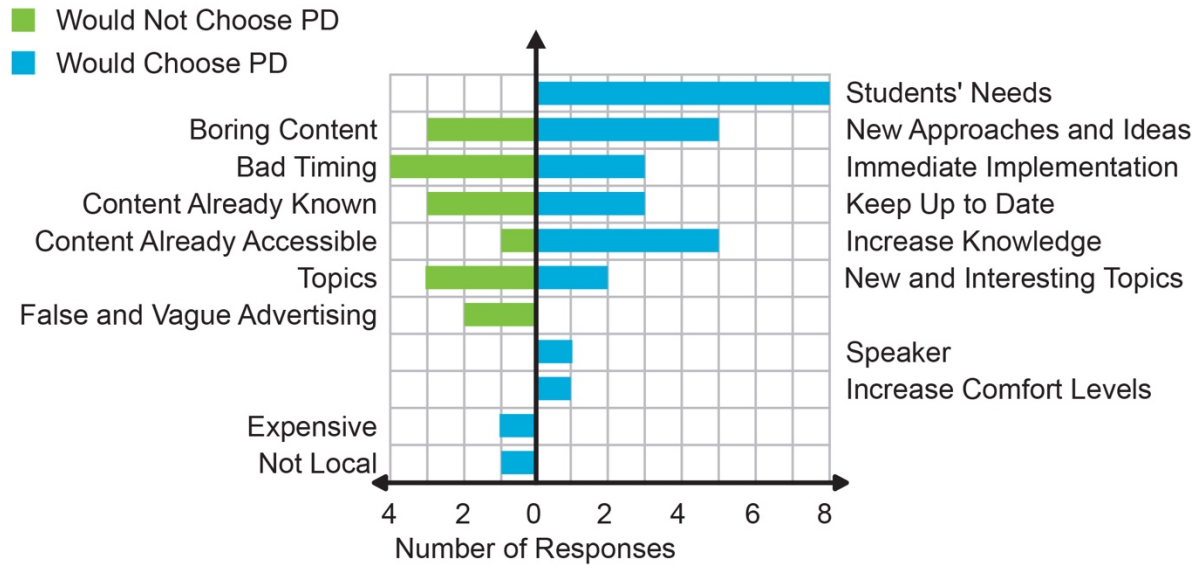


*Figure 6.* Why Teachers Do and Do Not Choose Professional Development (PD)

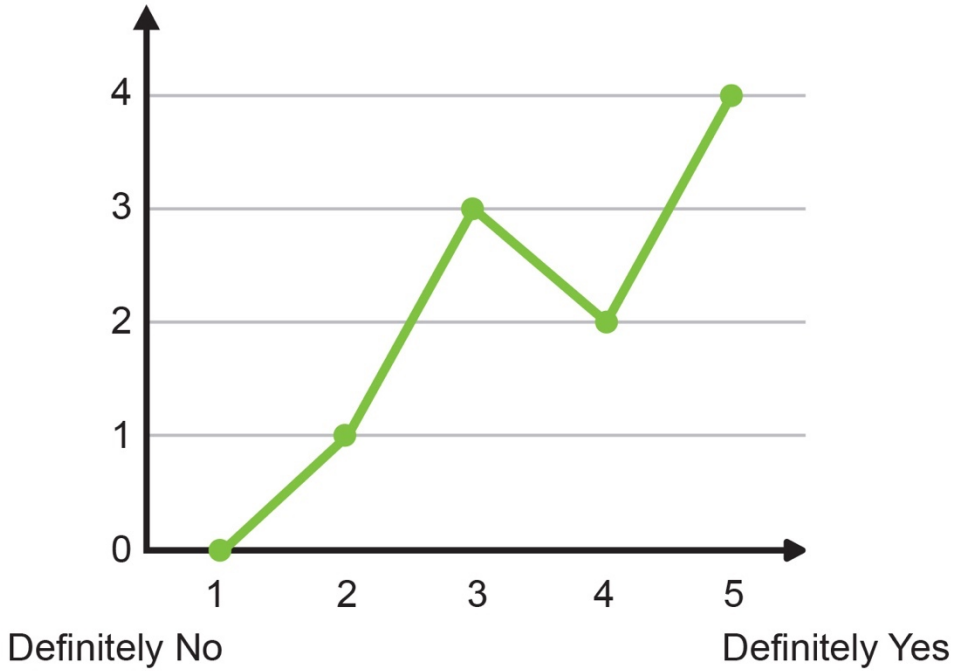


*Figure 7.* Number of Teachers and Whether They Would Attend Digital Literacy Professional Development

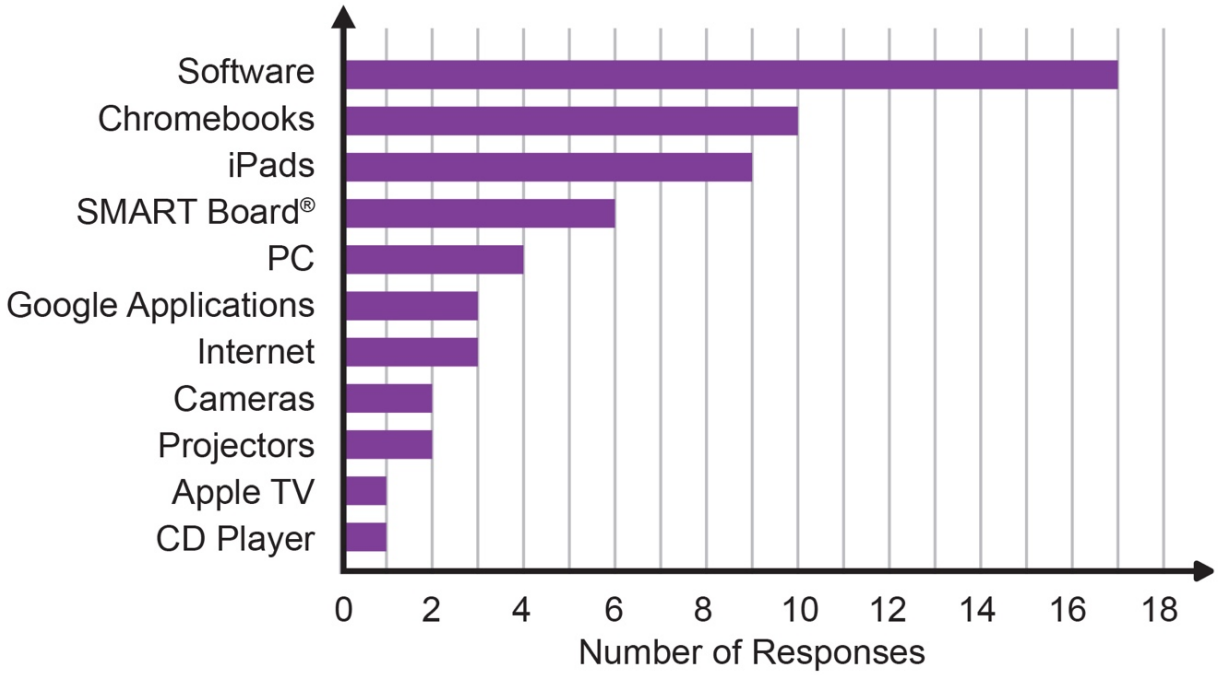


*Figure 8.* Types of technology used in classrooms

**Activity Results**

Results from the activity instruments revealed what promotion ideas to use and how to reach educators to inform them about the professional development. The top information that teachers suggested should be promoted in the information for digital literacy professional development included the topics at the session, what type of food is available, the software being taught, and a stipend to attend. These were followed by the engaging areas of the class, post-class resources, copy that would draw their attention, and length of the class (Figure 9). During the small-group activity, participants were given a sheet of paper with words, that research showed to be effective when communicating professional development. The information most frequently selected by participants included the topics at the session, the software being taught, the engaging areas, the post-class resources, and the length of it. Educators placed emails and online as their top choices, with Facebook and Twitter following closely behind as favored communication channels (Figure 10). Direct mail and print publications were the least recommended communication methods.

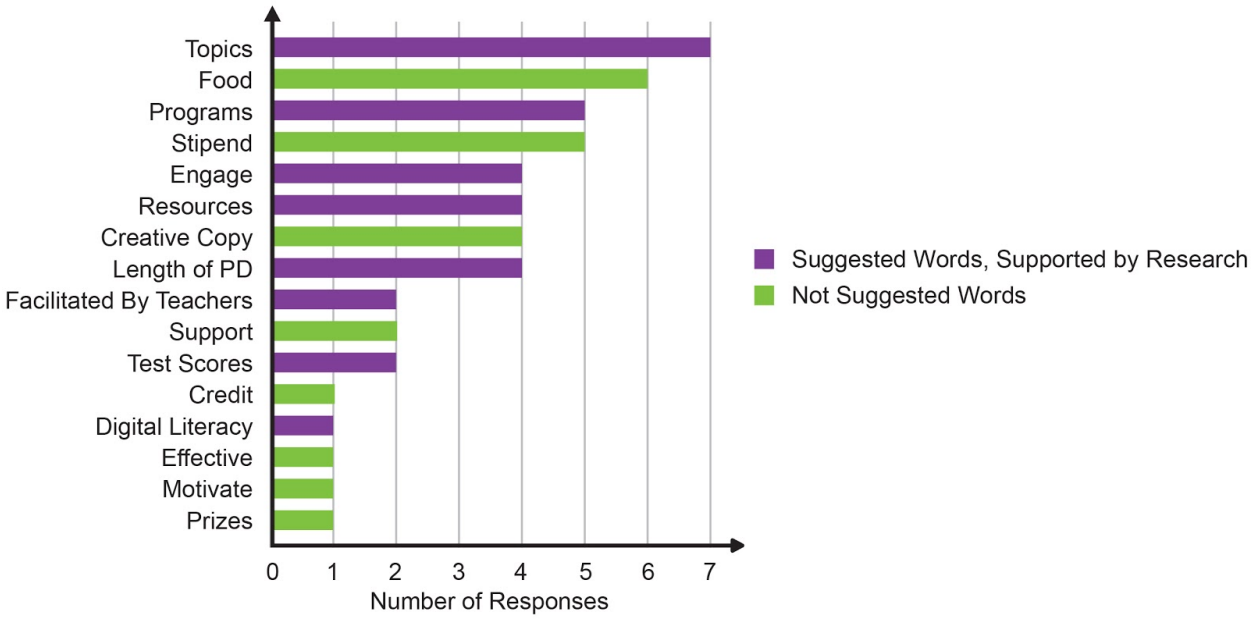

*Figure 9.* Number of Types of Information Used in Promotions for Digital Literacy Professional Development (PD)

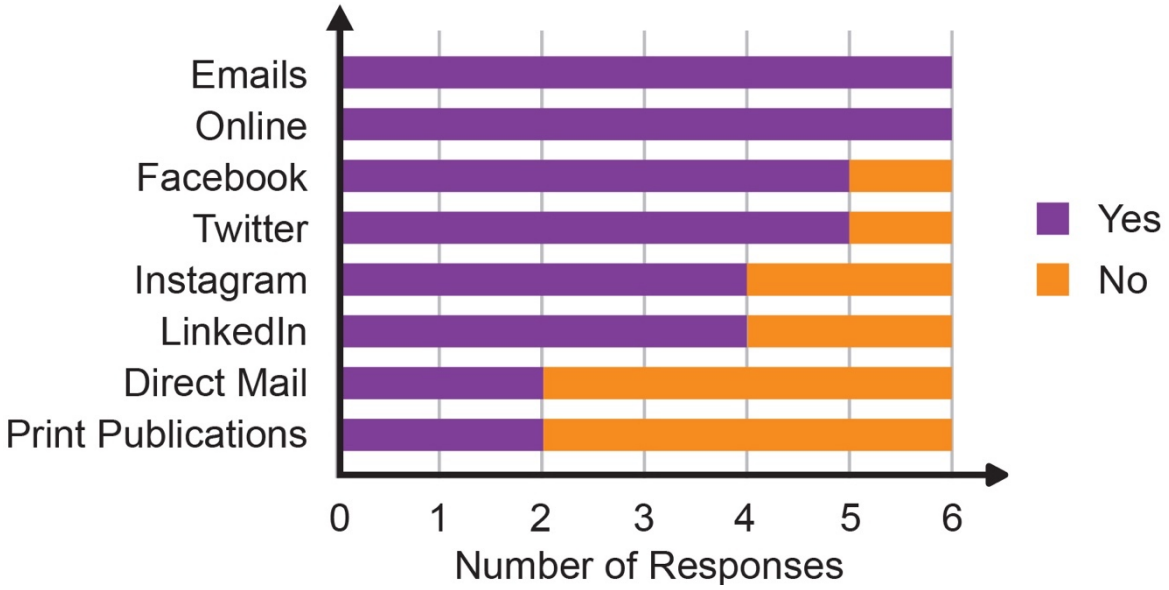


*Figure 10.* Suggested Communication Methods for Digital Literacy Professional Development

Additionally, the survey, interview, and activity instruments revealed educators' personal perceptions of self-efficacy related to comfort and effectiveness of teaching with technology. A very strong relationship was seen between educators' comfort levels and effectiveness concerning teaching with technology (Figure 11). The majority of educators either agreed or felt neutral toward personal comfort levels teaching with technology and that teaching with technology was effective.

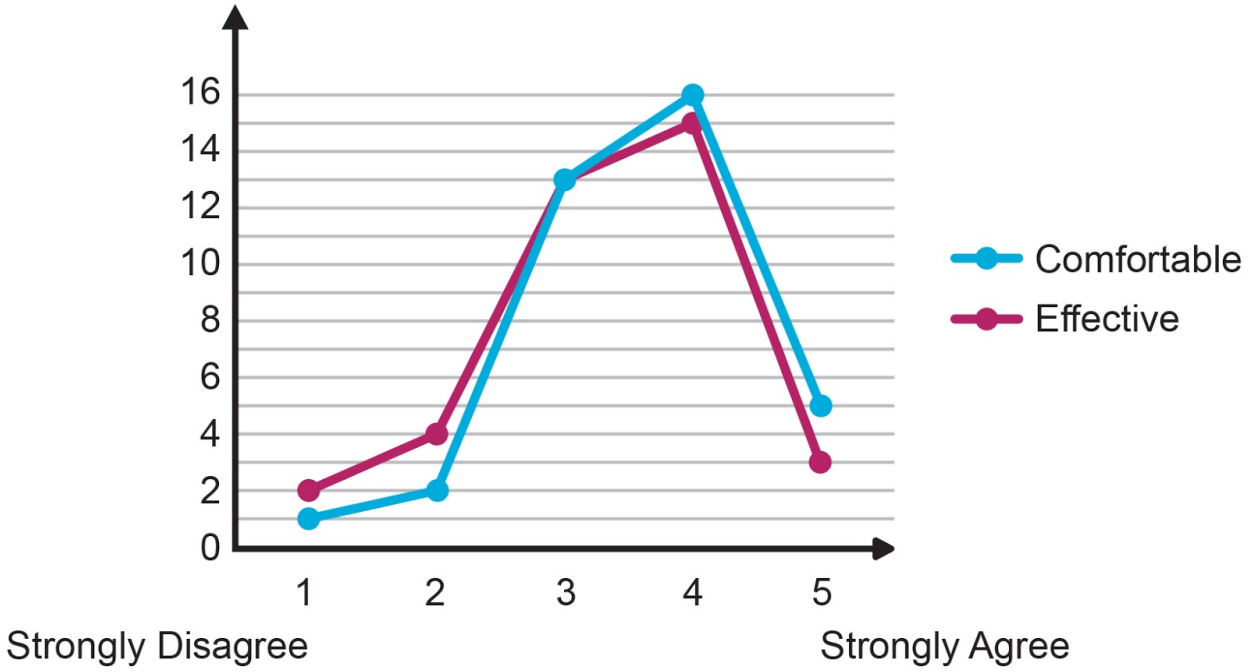


*Figure 11.* Number of teachers and beliefs about teaching with technology

This study examines the personal barriers teachers face when teaching with technology, strategies to mitigate those barriers and alter negative beliefs, and promotional strategies to encourage teachers to enroll in digital literacy professional development. Findings also identify strategies to effectively promote an upcoming digital literacy professional development at Ball State University in collaboration with the Professor Garfield Foundation.

**Summary**

Roughly one-third of teachers were not offered the resources, flexibility, nor professional development to teach digital literacy effectively. Two thirds of teachers dedicated less than one hour a week to teach students how to use digital tools. When teaching, three out of the eight digital literacy skills, e-safety, functional skills, and finding and selecting information, were mainly taught. While most educators felt comfortable teaching with technology and that it was effective, many also held concerns that they could easily feel the opposite if technology was overused and they stopped learning new skills. If available, more than half of teachers would

attend digital literacy professional classes, and some may change their mind if the promotions in contained clearly listed topics, accurate class information, software learned, stipends for attending, and post-class resources. Additionally, it is important to reach the teachers through their preferred methods of emails, online, and social media.

## Chapter 5: Discussion

This study contributes to our understanding of why educators choose to teach or not teach with technology. It specifically relates their beliefs about the effectiveness of digital literacy curricula and how comfortable they are teaching it. The first research question addresses why teachers feel uncomfortable teaching with technology and why they are skeptical about its effectiveness. Even though more than half of educators from this study feel comfortable and that it is effective to teach with technology, many held concerns that could sway them to feel differently. Some teachers who felt it was effective also cautioned that it could be ineffective if overused in their schools. A participant mentioned that sometimes their students are easily distracted when using devices too much. Physical books in those instances could be more beneficial. Additionally, research shows that some educators feel that their functional skills are less developed than their students (Payton & Hague, 2010). A participant in this study acknowledged that to be true for them. The participant stated they felt that by turning tables and asking their students to teach functional skills to them in times of need might empower their students to share their knowledge. However, this option would not alter their comfort level of teaching with technology. Research shows that teachers feel that technology can be misused (Prensky, 2008) and results in the belief that teaching with technology is ineffective (Hu, 2007). Many teachers in the study voiced concerns that technology is not effective when it replaces some pen and paper activities. One teacher offered the example that when their students create study guides with their devices, many choose to copy and paste information instead of typing it out, thereby losing the opportunity to reinforce their knowledge of the material.

The second research question examines strategies to alter teacher comfort levels with teaching with technology and their thinking that it is not effective. The study overwhelmingly

showed that teachers believe that more professional development would increase their comfort levels and more student engagement within digital tools would increase the effectiveness of technology. Additionally, they felt that their technology skills greatly contributed to why they felt uncomfortable. With more professional development, many skeptical teachers could gain skills and increase their comfort levels. Some senses of comfort and effectiveness levels were influenced by the same reason. Access to devices outside of the school could give them the time to learn about the devices and test their lessons. This study also addresses questions to third research question addressing what promotional strategies can be implemented to encourage teachers to enroll in digital literacy professional development to change their beliefs. The reasons why educators feel comfortable teaching technology and that it is effective, in addition to their reasons how to feel extremely comfortable with teaching technology and that it would be an extremely effective method, can be used as messages in promotion strategies. In addition, this study shows that educators choose a digital literacy professional development program based on the content and topics advertised. Timing and communication methods are important strategies for a higher enrollment. Some teachers stated they would be more likely to attend if they could use the lessons in their classrooms immediately. Communication methods play a vital role when informing educators about opportunities. They want to see accurate information about the class, what to expect, and how it will help their students.

**Key Themes**

Six key themes emerged from this study:

1. Before using technology, schools should create a plan to avoid overuse, underuse, and even misuse of digital tools.

2. Time is typically an issue. A required time outside of the class time would be beneficial for learning skills and collaborating with other teachers.
3. In order to learn digital literacy and gain comfortability with it, schools should have required professional development either in or outside of their schools.
4. If the professional development is outside of their schools, teachers need to choose what they will attend. Promotion plays a vital role in communicating the complete, up to date, and accurate information about the offerings.
5. The timing of the training is important. Teachers stated that it is important for them to be able to immediately implement new skills.
6. Promotion of professional development opportunities should carefully target teachers on the media that they normally use.

**Digital Literacy School Plan.** Teachers are concerned that technology could easily be overused or underused at their schools. To combat this issue, schools need to develop a plan for technology use and expectations. The plan should include input from all teachers and staff to understand how they currently use technology and want to use it, administrators to understand what is needed from the teachers to develop an effective plan and to include any school-wide requirements, and digital literacy leaders to understand the topic and best practices. If all employees are involved and able to give honest feedback in an unbiased environment, then it could increase everyone's buy-in for the plan. Based on this study, the plan should include a device for each student that is up to date and without technical issues, an IT Support professional on staff, technology lessons built into the curriculum to save time and create richer learning experiences, and required professional development. A plan would ensure that technology is being used properly and consistently in all classrooms.

**Required Technology Time.** Educators are typically concerned with the classroom time they have available to them for teaching. They have to create lesson plans and determine the best use of time which includes time to learn information for any state-required tests. Teachers do not always have extra time to learn new skills or collaborate with other teachers. Schools could help teachers by dedicating one day a week or in-service days to learning about digital literacy and collaborating with other teachers. This time could give teachers opportunities to learn more and share ideas during day time hours. Additionally, the collaboration time could help teachers learn from each other about what software is working with their students and how they are using them in their classrooms. Research in this paper states that online resources that allow for collaboration help teachers learn. Schools could create their own private social feeds for their teachers to encourage collaboration and share ideas.

**Required Digital Literacy Professional Development.** Most educators agreed that digital literacy is an important skill set for students to learn, but many are not teaching all of the skills. In general, if someone is not comfortable with a task or does not find it effective, they typically will not do that task. Teachers may not be teaching digital literacy skills if they are uncomfortable or feel that it is ineffective. In this study, the top reasons for teachers' levels of comfort and effectiveness of teaching with technology were due to staying up to date and learning new skills through professional development. Digital literacy professional development should be required for all teachers. The professional development needs to include why the topic is important for students, the eight key digital literacy skills and examples of how to use them, what software is adaptable for different skill sets and how to use them, active learning like role playing by allowing teachers to test the software with real kids while the program's facilitators mentor them, evidence of how students learn with digital literacy, provide tips to keep students

engaged, include collaborative activities to increase learning, provide food and stipends, and give participants post-class resources such as posters for their walls, key highlights from the class, and a list of software. Everything taught and provided at the professional development should be included in the promotions to effectively advertise it.

**Digital Literacy Professional Development Promotion.** One teacher in this study stated that they attended a professional development class based on the promotion, and when they attended, the class content did not match what was advertised. Due to the false advertising, they will not go to any more classes from that organization. In that instance, the messaging on the promotion played a vital role. This study showed that teachers feel that the following messages are important

- clearly defined topics;
- ways technology provides flexibility;
- ways to engage students;
- how the information will keep them up to date;
- the adaptable software available;
- how to find and use diverse materials;
- how to balance technology in lessons;
- how to create more student interactions;
- why students need digital literacy skills;
- exactly what they will learn;
- how the professional development will be engaging for the teachers.

**Digital Literacy Professional Development Timing.** Based on the data from this study, almost two thirds of teachers did not implement what they learned from digital literacy

professional development into their classrooms and timing could be a contributing factor. Teachers also stated that one reason for choosing professional development was based on timing. They want to be able to immediately implement their new knowledge into their classrooms. They also avoid training that is during class time. Therefore, professional development should be during breaks and right before school begins. The end of summer break, fall break, spring break, and in-service days would fit their needs.

**Digital Literacy Professional Development Communications Methods.** This study showed that the best way to communicate professional development is through email, a web page, Facebook, and Twitter. An email could be sent to educators and administrators that includes high-level bullets of information and a link to webpage that shares what to expect at the class. The webpage could include a video of an educator teaching digital literacy to their students and show how the students are engaging, interacting, and learning with the digital tools. The video could help teachers visualize how digital literacy could be effective in their classrooms. More videos could share the eight digital literacy skills discussed in this study and how the professional development class is structured. The webpage could include more ways for the user to interact such as a quiz about digital literacy to test their knowledge or a poll to learn more about the users. It is important that everything listed on the webpage is accurate and up to date. Ads could be posted on Facebook and Twitter with a link to the webpage as another way to reach educators. All of these strategies would give users a way to interact with the promotions.

## Recommendations

This study strongly shows the need for additional digital literacy professional development for educators. It should increase their comfort levels with teaching with technology and using technology, help teachers understand how digital literacy can help their students in the

21st century, how they might teach with digital tools effectively, and how they would be able to balance the use of technology in their classrooms. This study shows that teachers need to gain key digital literacy skills and ensure that they feel comfortable teaching them before leaving the professional development course. Teachers voiced concerns about overusing technology, so it is important that the training include examples of when and why technology is the best choice for learning. To retain their new knowledge, teachers need to be able to implement new skills immediately and be able to collaborate with other teachers on an ongoing basis. Training can offer great learning opportunities, but it is important to communicate that information to teachers. To gain enrollment in the professional development classes, this study showed that the promotions need to accurately match the training topics and programs taught, include the post-class resources that will be available, offer new approaches and ideas, and ensure the class will offer ways to keep up to date with technology. The communication methods also need to reach educators effectively and on multiple platforms such as emails, web, and social media.

Many of the strategies within this study are common and could also benefit other professional development programs. However, there are several strategies that could directly benefit digital literacy professional development. First, teachers are concerned with the balance of technology use. They do not want to overuse or underuse it in their classrooms, and do not want it misused by students. To address these concerns, the professional development could include instruction on when it is best to choose technology for a lesson and when non-technology methods are a better solution. Since educators want to know exactly what they will learn in the class and balance of use was a significant concern for them, the promotions should state that they will learn when technology is and is not the best choice. Additionally, educators who are unsure if they want to attend a class could be convinced to attend if they know the class offers them that

important information. Second, teachers are concerned about mitigating chaos when using devices in their classrooms. In particular, younger grade level students may still be learning about devices and excited to use them. Participants in this study stated that some students do not stay within the software during a lesson or are steps behind on their devices. This causes teachers to stop lessons and help children individually, taking class time away from the other students. The professional development class should include ways to manage the classroom with devices to keep students engaged and on the right task with the lessons. Likewise, to encourage enrollment, the promotions should state that teachers will learn how to manage students with technology to avoid chaos and keep them on track.

**Limitations**

The promotion and communication strategies found from the study were ideas from teachers and not tested to ensure they were the best choices. To test, content for the promotions would need to be created and deployed to audiences for a scheduled digital literacy professional development class. Multiple pieces of content with different promotion messages could have been created to test which version yielded the highest engagement and class sign ups. The communication methods, like email, direct mail, and websites, could have been tested to see which medium proved to be most effective. The data from the study was collected from 40 educators from mostly Delaware County. A larger study with more participants in more areas could have created a more diverse set of participants and possibly different findings.

**Future Possibilities**

This paper examined educators' personal barriers of teaching with technology relating to their comfort level and feeling toward the effectiveness of it. There are many other barriers to teaching with technology that were briefly explored in this paper including little access to

technology, lack of administrative support, lack of IT Support professionals, plans for technology, lack of digital literacy professional development classes, network problems, strong focuses on items that take away from technology like standardized tests, funding, and time in the day. These barriers could be explored further to understand their effects on teaching with technology. Future studies could examine how schools have created strategies to overcome these obstacles. Since technology keeps improving with more possibilities and expanding to more audiences at rapid rates, newer studies relating to teachers' beliefs could contribute the current knowledge and use of digital literacy in schools.

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## Appendix A

Online Survey

For this survey, we are using the term "digital literacy." This term can be best summarized as the ability for students to use digital tools – such as online learning environments, software and hardware – for critical thinking and problem solving. Digital literacy is often used synonymously with being technologically savvy. However, we are most interested in digital literacy as it relates to the following eight components: critical thinking, creativity, collaboration, finding and selecting information, effective communication, social and cultural awareness, functional skills, and e-safety.

The purpose of this survey is to better understand the current state of digital literacy in the K-5 classroom and how digital literacy might be better facilitated in the classroom. This survey should take about 10-15 minutes to complete.

1. INFORMED CONSENT: I understand that the data collected through this survey is part of a research project being conducted by Ball State University and the Professor Garfield Foundation. I also understand that this anonymous data is subject to publication. By clicking “yes” I am granting the researchers permission to include my responses (not my identity) in any public or private reports of the data. I understand the conditions of this study and agree to continue.
___ No
___ Yes

2. What is your teaching and/or administrative responsibility?
___ Kindergarten
___ First
___ Second
___ Third
___ Fourth
___ Fifth
___ Education Technology
___ Special Education
___ Other

3. If Other, what is your teaching and/or administrative responsibility?

4. Does your school offer you the flexibility and resources needed to teach students how to use technology?
___ Yes
___ No

5. Please specify how your school offers the flexibility and resources needed to teach students how to use technology.

6. This year, how many in-service learning opportunities for professional development have you

participated in through your school system related to teaching students how to use technology?
___ 0
___ 1-3
___ 4-5
___ More than 5

7. Does your school offer you the flexibility and resources needed to teach about digital literacy?
___ Yes
___ No

8. Please specify how your school offers the flexibility and resources needed to teach about digital literacy.

9. This year, how many in-service learning opportunities for professional development have you participated in through your school system in the area of digital literacy?
___ 0
___ 1-3
___ 4-5
___ More than 5

10. Outside of your school, do you seek opportunities to improve proficiency and preparedness to use and/or teach technology?
___ Yes
___ No

11. Please specify how, outside of your school, you seek opportunities to improve proficiency and preparedness to use and/or teach technology.

12. This year, how many learning opportunities for professional development have you participated in outside of your school system related to teaching students how to use technology?
___ 0
___ 1-3
___ 4-5
___ More than 5

13. Outside of your school, do you seek opportunities to improve proficiency and preparedness to teach digital literacy?
___ Yes
___ No

14. Please specify how, outside of your school, you seek opportunities to improve proficiency and preparedness to teach digital literacy?

15. This year, how many learning opportunities for professional development have you participated in outside of your school system related to teaching digital literacy?
___ 0

___ 1-3
___ 4-5
___ More than 5

16. How were you informed about that digital literacy professional development? Please choose all that apply.
___ Word of Mouth
___ Principal
___ Direct Mail
___ Email
___ Website
___ Other

17. If Other, how were you informed about that digital literacy professional development?

18. Have you applied the technology skills you learned from the digital literacy professional development in your classroom?
___ Yes
___ No

19. Please specify how you applied the technology skills you learned from the digital literacy professional development in your classroom.

20. Approximately how many hours a week, if any, do you dedicate to teaching students how to effectively use digital tools?
___ 0 hours
___ Less than 1 hour
___ 1-2 hours
___ 2-5 hours

21. Is there time structured so that students have the opportunity to use digital tools while working together in-person? (i.e. Operating a Camera)
___ Yes
___ No

22. If yes, please provide one brief example of students having the opportunity to use digital tools while working together in-person. (i.e. Operating a Camera)

23. Is there time structured so that students have the opportunity to collaborate together in digital spaces, though not together physically? (i.e. Google Docs)
___ Yes
___ No

24. If yes, please provide one brief example of students having the opportunity to collaborate together in digital spaces, though not together physically. (i.e. Google Docs)

25. Is learning how to effectively access digital information on the Internet a part of your specific teaching or technology curriculum?
___ Yes
___ No

26. If yes, please provide one brief example of learning how to effectively access digital information on the Internet a part of your specific teaching or technology curriculum.

27. Do you include activities or assignments that are specifically designed to get students thinking about how to use different kinds of digital tools?
___ Yes
___ No

28. If yes, please provide one brief example of activities or assignments that are specifically designed to get students thinking about how to use different kinds of digital tools.

29. Do you include activities or assignments that are specifically designed to inspire students to be creative in the digital environment and/or use digital tools in inventive ways?
___ Yes
___ No

30. If yes, please provide one brief example of including activities or assignments that are specifically designed to inspire students to be creative in the digital environment and/or use digital tools in inventive ways.

31. Do you include activities or assignments that help students specifically address the role of technology in their lives?
___ Yes
___ No

32. If yes, please provide one brief example of including activities or assignments that help students specifically address the role of technology in their lives.

33. Do you teach students how to engage in effective communication in digital environments?
___ Yes
___ No

34. If yes, please provide one brief example of teaching students how to engage in effective communication in digital environments.

35. Is e-safety a part of your specific teaching or technology curriculum?
___ Yes
___ No

36. If yes, please provide one brief example of e-safety as part of your specific teaching or technology curriculum.

37. What products, tools, and services do you use to help teach ABOUT technology (i.e. webinars online tutorials, coaching by peers, professional development workshops, etc.)?

38. What type of homework do you assign that requires students to use technology? Please choose all that apply.
___ Website (i.e. Study Island)
___ Digital worksheets (i.e. editable PDFs)
___ Apps (i.e. Kahoot)
___ Multimedia (i.e. audio/video)
___ Learning Management System (i.e. Blackboard, Canvas, Moodle)
___ Internet Research
___ Digital Portfolio (i.e. Seesaw)
___ Other

39. If other types of homework, please list any other types of service and provide a brief description.

40. I feel confident in my ability to teach digital literacy to my students.
___ Strongly Agree
___ Agree
___ Neutral
___ Disagree
___ Strongly Disagree

41. I believe that I effectively teach digital literacy.
___ Strongly Agree
___ Agree
___ Neutral
___ Disagree
___ Strongly Disagree

42. I think digital literacy is an important skill set to teach to my students.
___ Strongly Agree
___ Agree
___ Neutral
___ Disagree
___ Strongly Disagree

43. Please provide any other thoughts about teaching technology or digital literacy that you would like to share with us.

## Appendix B

Individual Interviews

1. Do you use technology to teach in your classroom?
If participant answered with a no, ask:
    2. What are some reasons why you do not use technology to teach? Then, skip to question 10.
If participant answered with a yes, ask:
    2. What types of technology do you use in your classroom?
    3. What are some reasons why you choose to use technology to teach?

4. How do you rate your comfort level of teaching with technology on a scale of 1 being not at all comfortable to 5 being extremely comfortable?
If participant chose 1 or 2, ask:
    5. What specifically makes you uncomfortable teaching with technology?
    6. What would need to happen to make you feel extremely comfortable teaching with technology?
If participant chose 3 or 4, ask:
    5. What specifically makes you comfortable teaching with technology?
    6. What would need to happen to make you feel extremely comfortable teaching with technology?
If participant chose 5, ask:
    5. What specifically makes you extremely comfortable teaching with technology?

7. How do you rate the overall effectiveness of teaching with technology on a scale of 1 being ineffective to 5 being extremely effective?
If participant chose 1 or 2, ask:
    8. Why do you think it's ineffective to teach with technology?
    9. What would need to happen to make you feel that teaching with technology is extremely effective?
If participant chose 3 or 4, ask:
    8. Why do you think it's effective to teach with technology?
    9. What would need to happen to make you feel that teaching with technology is extremely effective?
If participant chose 5, ask:
    8. Why do you think it's extremely effective to teach with technology?

10. What are your reasons for choosing professional development classes?

11. Are there any reasons why you would not choose a professional development class?

For the next question, I am using the term "digital literacy." This term can be best summarized as the ability for students to use digital tools – such as online learning environments, software and hardware – for critical thinking and problem solving.

12. If you had the option of choosing a digital literacy professional development class, rate if you'd choose to attend with 1 being definitely no to 5 being definitely yes.

13. Why did you choose that rating?
If participant chose 1, 2, 3, or 4, ask:
    14. What would make you choose 5, being definitely yes?
If participant chose 5, ask:
    14. Why did you choose 5, definitely yes?

## Appendix C

Small-Group Activity, Part One Sheet

Bulletin Board for a Technology Professional Development Workshop

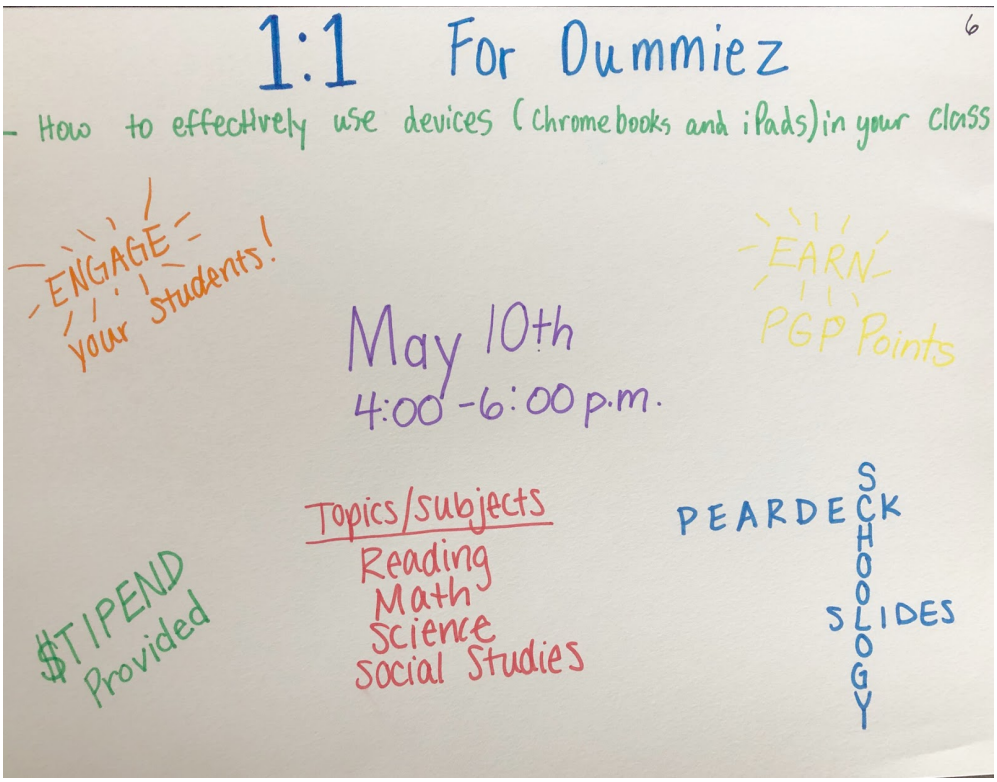
You have been given an opportunity to teach a professional development workshop focusing on technology, specifically, digital literacy, to your colleagues. In order to tell them more about it, you decide to design a bulletin board to promote your workshop.

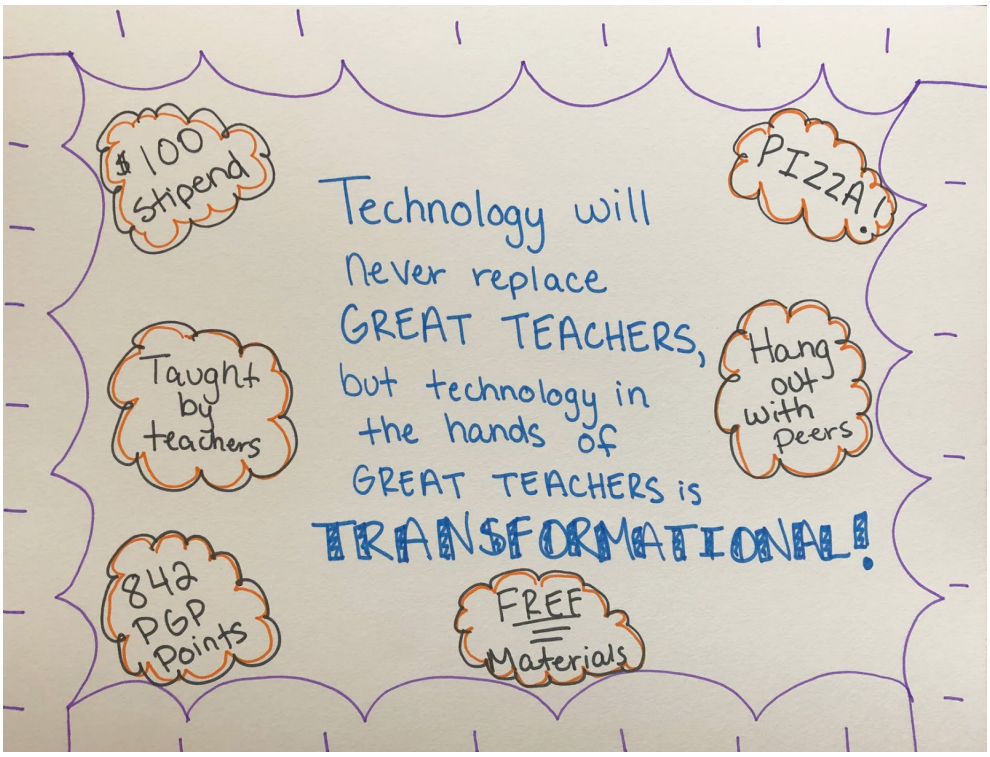
Use the provided blank paper as the bulletin board. You can cut out and paste words from the list below, write and draw different ideas, or use a combination.

___-Day Workshop ___-Hour Workshop
Areas Taught: _____
Blog:_____
Collaborative Environment
Curriculum-Based Lesson Plans
Digital Literacy Tools
Engage Your Students
Facilitated by Teachers
Increase Your Students' Test Scores
Motivate Your Students
Online Workshop
Post-Workshop Resources
Post-Workshop Support Contact 800-123-4567
Summer Workshop
What Teachers are Saying About this Workshop "_____
What You'll Learn: _____
www._____

## Appendix D

Small-Group Activity, Bulletin Board Examples



## Appendix E

Small-Group Activity, Part Two Sheet

Bulletin Board for a Technology Professional Development Workshop

Now that your bulletin board is complete, you're ready to promote your workshop to your colleagues! However, what if you wanted to invite more teachers beyond your school to attend your workshop? If you could use your bulletin board as an advertisement, where else would you place it so others could learn about workshop and enroll in it? You can choose more than one option below.

_____Emails
Who should receive your emails? List the roles.

_____Online
What websites?

_____Direct Mail
Who should receive your direct mail? List the roles.

_____Print Publications
What publications?

_____Twitter
_____LinkedIn
_____Facebook
_____Instagram
What groups?

Please list any other places you'd advertise.

## Appendix F

Small-Group Activity, Three-Question Survey:

Please circle your response.

1. Do you use technology to teach in your classroom?
Yes No
If Yes, please answer questions 2 and 3.
If No, please do not answer questions 2 and 3.

2. How do you rate your comfort level of teaching with technology.

| Not at all Comfortable | | | | Extremely Comfortable |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

3. How do you rate the overall effectiveness of teaching with technology.

| Ineffective | | | | Extremely Effective |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

## Appendix G

| Key Digital Literacy Skills | Question Asked to Participant |
|---|---|
| E-Safety | Is e-safety a part of your specific teaching or technology curriculum? |
| Functional Skills | Is there time structured so that students have the opportunity to use digital tools while working together in-person? (i.e. Operating a Camera |
| Ability to Find and Select Information | Is learning how to effectively access digital information on the Internet a part of your specific teaching or technology curriculum? |
| Effective Communication | Do you teach students how to engage in effective communication in digital environments? |
| Cultural and Social Understanding | Do you include activities or assignments that help students specifically address the role of technology in their lives? |
| Creativity | Do you include activities or assignments that are specifically designed to inspire students to be creative in the digital environment and/or use digital tools in inventive ways? |
| Critical Thinking and Evaluation | Do you include activities or assignments that are specifically designed to get students thinking about how to use different kinds of digital tools? |
| Collaboration | Is there time structured so that students have the opportunity to collaborate together in digital spaces, though not together physically? (i.e. Google Docs) |